

CLAIMS

1. A resin for an undercoating material for forming an underlying film between a substrate and a photoresist layer, wherein

the resin is a novolac resin which comprises 1% by mass or less of low molecular weight components in which the contents of the components is measured by gel permeation chromatography, and the components have a molecular weight of 500 or less.

2. The resin for an undercoating material according to claim 1, wherein the novolac resin is a condensate of aldehydes and phenols containing at least m-cresol.

3. The resin for an undercoating material according to claim 2, wherein the phenols comprise 20 to 100 mol% of m-cresol.

4. The resin for an undercoating material according to claim 2, wherein the phenols further comprise p-cresol.

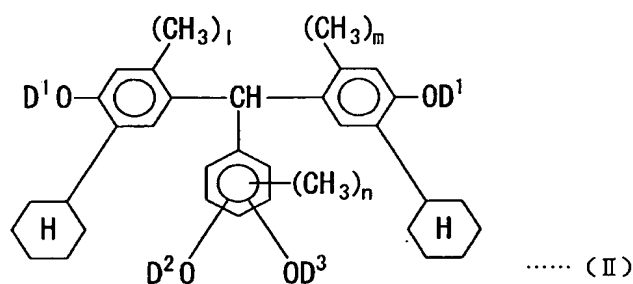
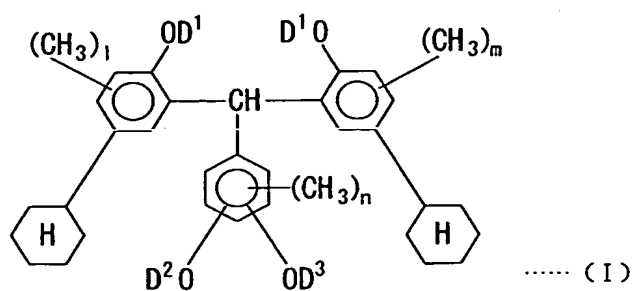
5. The resin for an undercoating material according to claim 4, wherein the phenols contain 20 to 50 mol% of p-cresol.

6. An undercoating material for forming an underlying film between a substrate and a photoresist layer, wherein

the undercoating material comprises a novolac resin containing 1% by weight or less of low molecular weight components in which the content of the components is measured by gel permeation chromatography, and the components have a molecular weight of 500 or less.

7. The undercoating material according to claim 6, wherein the undercoating material further comprises a phenol derivative having a molecular weight of 200 or more esterified by naphthoquinonediazido sulfonic acid.

8. The undercoating material according to claim 7, wherein the phenol derivative contains at least one compound selected from the group consisting of compounds represented by the following general formulas (I) and (II):



wherein at least one of D^1 , D^2 and D^3 represents a naphthoquinone-1,2-diazidosulfonyl group and the remainder represent a hydrogen atom; and l , m and n represent an integer of 0 to 3.

9. The undercoating material according to claim 8, wherein the phenol derivative is an esterification reaction product of bis(5-cyclohexyl-4-hydroxy-2-methylphenyl)-3,4-hydroxyphenylmethane and naphthoquinone-1,2-diazido-5-sulfonylchloride.

10. A multilayered resist pattern forming method, which comprises,

applying an undercoating material comprising at least a novolac resin which contains 1% by weight or less of low molecular weight components having a molecular weight of 500 or less on a substrate, wherein the content of the components is measured by gel permeation chromatography, and heating the undercoating material to form an underlying film;

forming at least one photoresist layer on the underlying film;

selectively exposing the photoresist layer to light;

alkali-developing the exposed photoresist layer to form a resist pattern on the photoresist layer; and

etching the underlying film with oxygen plasma via the resist pattern as a mask, thereby transferring the resist pattern onto the underlying film.

11. A laminate comprising at least a substrate, a photoresist layer, and an underlying film formed between the substrate and the photoresist layer, wherein

the underlying film contains a resin for an undercoating material wherein the resin is a novolac resin containing 1% by weight or less of low molecular weight components having a molecular weight of 500 or less, and

the content of the component is measured by gel

permeation chromatography.